

CLAIMS

I claim:

1. A template for imprint lithography comprising a two-dimensional array of spaced-apart plungers arranged on a surface, wherein the plungers are each individually addressable and actuated to move in a vertical direction; and actuating means.
2. The template of claim 1, wherein the plungers are circular in cross-section.
3. The template of claim 1, wherein the plungers are made from silicon.
4. The template of claim 3, wherein the plungers are fabricated from silicon oriented along the (100) plane.
5. The template of claim 1, wherein said actuating means include electrostatic, thermal, pressure, microfluidic, or magnetic actuation.
6. The template of claim 1, wherein the plungers are spaced from about 0.5 to about 2 μm apart.
7. The template of claim 1, wherein the plungers comprise a plunger wafer and a capping wafer.
8. A method for forming a lithographic pattern, comprising:
 - providing a substrate having a deformable polymer film deposited thereon;
 - actuating the plungers of the template of claim 1 to provide a pattern

of protruding and recessed features;

urging the patterned template at a molding pressure into the polymer film, thereby transferring the template pattern onto the polymer film;

freeing the template from the film;

processing the patterned polymer film to remove the thin portions of the film; and

etching the substrate to reproduce the template pattern.

9. The method of claim 8, further including the step of stepping the template over the surface of the polymer film.

10. A method for forming a multilayer device, comprising the steps of:

preparing a lithographic pattern by the method of claim 8;

reconfiguring the template to form a new pattern of protruding and recessed features; and

repeating the steps of urging, freeing, processing and etching to form a multilayer device.